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A Psychometric Study of the Teacher Work-Autonomy Scale With a Sample of U.S. Teachers

by

Luman E. G. Strong

A Dissertation
Presented to the Graduate and Research Committee
of Lehigh University
in Candidacy for the Degree of
Doctor of Education
in
Educational Leadership

Lehigh University
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Abstract

The purpose of this research was to evaluate the psychometric properties of Friedman's (1999) Teacher Work-Autonomy Scale (TWA) in order to determine whether it was an acceptable instrument to measure U.S. teachers' autonomy in the present educational context. A second purpose was to ascertain the current status of teachers' perceptions of their autonomy from a sample of U.S. teachers. Four hundred seventy-seven teachers from three public schools in Michigan participated in this study for a response rate of 30%. Factor analysis confirmed the multi-faceted nature of teachers' autonomy; however, somewhat different factor structures were found for the elementary and secondary teachers in this study in comparison to that of Friedman. The TWA without major modifications appeared to be a valid and reliable instrument for use with a U.S. secondary sample but with limitations with an elementary sample. Elementary and secondary teachers perceived autonomy in the different factors in identical order, but with significant differences between their scores. Differences in school structure and conceptions of autonomy may have contributed to grade level discrepancies. The findings suggest that administrators may be able to enhance teachers' autonomy by releasing some of their power to include teachers in school leadership, specifically in the two areas teachers perceived with lowest autonomy: school finances and professional development.

CHAPTER ONE

Purpose and Literature Review

Autonomy seems to be an advantageous workplace trait. An employee with autonomy on the job may show such positive attributes as better performance in complex jobs (Dodd & Ganster, 1996), improved mental health (Bond & Bunce, 2001), and favorable work attitudes (Cordery, Mueller, & Smith, 1991). Teachers, as a specific population of the workforce, seem to reflect this tendency. Literature has demonstrated the vital role teachers' autonomy plays in benefits to a school such as teacher retention (Guarino, Santibanez, & Daley, 2006; Parker, Axtell, & Turner, 2001; Stockard & Lehman, 2004), high job satisfaction (Johnson & Spector, 2007; Wisniewski, 1990), and greater job performance in the classroom (Blase & Kirby, 2009). Autonomy also appears to be a job condition teachers strongly desire (Blase & Kirby).

Despite the preponderance of evidence to suggest the merits of teachers' autonomy, research findings are discrepant. Teachers have reported a perception of high levels of autonomy (Einolf, 2002; Garvin, 2007; Rudolph, 2006) yet also have reported dissatisfaction with their level of autonomy (Blasé & Kirby, 2009; LaCoe, 2006; Rudolph). This apparent contradiction may be partially attributable to uncertainties in the measurement of teachers' autonomy. Four frequently used instruments have been developed to measure teachers' autonomy; however they all appear limited in ability to capture the construct. Most instruments designed to measure teachers' autonomy were not created to adapt to the significant change as education has experienced during the last few decades. One instrument appears to have been structured so as to accommodate change and thus more fully and accurately captures the construct. However, it was

developed in Israel and sampled only Israeli teacher samples. No study has validated this instrument to test its applicability to U.S. teachers.

The primary purpose of this study is to evaluate the psychometric properties of an instrument designed to measure teachers' perceptions of their autonomy. The findings will be compared to the original findings from 1999 to discuss ability of the instrument to measure U.S. teachers' autonomy in the present educational context. A secondary purpose of this study is to ascertain the current status of teachers' perceptions of their autonomy from a sample of U.S. teachers. This literature review will summarize the facets of teachers' autonomy and its results. A description of the possible reasons for paradoxical results will follow. A description of the four instruments that attempt to measure teachers' autonomy will conclude the review.

Teachers' autonomy

Despite the difficulties in reaching consensus on a definition (Moomaw, 2005; Rudolph, 2006), research of teachers' autonomy has identified several elements of the construct. The first is the identification of spheres of teachers' autonomy. LaCoe (2006), O'Hara (2006) and Rudolph categorized the arenas in which teachers may exercise autonomy into six distinct aspects of curriculum, pedagogy, assessment, student behavior, classroom environment, and professional development. The areas teachers' autonomy appears to function may be distilled to two major regions. Teaching pedagogy, or individual classroom operations, is the most common area in which teachers perceive having autonomy (Blase & Kirby, 2009; LaCoe). School-wide autonomy, or management and planning for the overall school, is the other inclusive region that teachers' autonomy may be manifest (Ingersoll, 1994).

A second element of teachers' autonomy common in literature is decision-making ability (Pearson, 1995; Sentovich, 2004). This element allows teachers choice and determination in the critical issues surrounding their duties. Crawford (2001) views a teacher's power to make decisions as the "hallmark" of teachers' autonomy. Teachers have the closest association with students and parents on a daily basis and therefore are positioned to make the best and most beneficial decisions concerning students' education (Crawford). Teachers believe that they are the best qualified about classroom procedures and thus should have considerable decision-making ability (Elmore, 1987).

A third element of teachers' autonomy is freedom. Teachers with autonomy are seen to possess certain freedoms to determine their work processes (Blase & Kirby, 2009). Brunetti (2001) claimed autonomy is freedom from demands or pressure from other teachers or administrators. Such freedoms may include liberty in delivery of curriculum (Curren, 2007). In some cases, freedom has been conceptualized to mean freedom from external controls (Charters, 1976). Freedom as a facet of autonomy has also been equated with a lack of restrictions or inhibitions in the operation of a classroom (Brunetti). However, the substantial changes in education have probably reduced the extent of this freedom. Teachers must now adhere to federal, state and district procedures and accountability measures that did not exist to this obtrusive level earlier. As Deci and Ryan (2002) claimed, "freedom" now must occur within the borders of necessary constraints.

A fourth element of teachers' autonomy is control (Rudolph, 2006). The concept of control as a facet of autonomy is closely associated with latitude (Ingersoll, 1994; Ingersoll, 1996; LaCoe, 2006). Sentovich (2004) viewed autonomous control as the teacher being "in charge" of classroom responsibilities. A teacher with autonomy will have the authority and

latitude to control his/her classroom and the manner in which it operates. Teachers' autonomy is both a pervasive and a valuable element in the operation of a school: It seems to affect the core aspects necessary for academic success.

Autonomy as a valuable element in teachers' daily life

Teachers' autonomy's value to education is evident in several respects. Teachers have reported autonomy as a desired work condition (LaCoe, 2006). Reference to teachers' autonomy also seems to recur frequently throughout literature. Specifically, teachers' autonomy is frequently associated with beneficial school characteristics such as teacher retention (Stockard & Lehman, 2004) and job performance (Blasé & Kirby, 2009).

Literature has identified various workplace conditions desired by teachers and associated with positive school attributes. Though a myriad of conditions may be found throughout studies, only a small set recurs regardless of school categorization. Some of these common workplace conditions desired by teachers are tangible in nature. Literature has found teachers as desiring higher salaries (Horng, 2009; Ingersoll, 2001; Stockard & Lehman, 2004) and greater resources for their students. School facilities (Horng), class size (Guarino et al., 2006; Ingersoll), and commute time (Horng) have also been identified as critical workplace conditions for teachers. Other frequently identified conditions are intangible in quality. Ingersoll and Stockard and Lehman found a safe environment to be an important workplace condition. Teachers also reported parent involvement (Johnson & Birkeland, 2001) and community support (Ingersoll) as positive school conditions. However, autonomy may be the most recurring element of all the desired workplace conditions. A teacher's ability to choose pedagogy, curriculum, and

participate in school-wide decision-making is often related to other school work conditions. Teachers' autonomy appears to be a critical component connected with an atmosphere that promotes desired work conditions. For example, teachers' autonomy is perceived to affect teachers' perception of their professional status and job satisfaction (Bogler, 2001).

Teachers' autonomy's association with beneficial school characteristics has commonly appeared in literature across the broad spectrum of schools. For example, teachers reported a desire for autonomy regardless of experience. Stockard and Lehman (2004) found that first-year teachers reported a sense of control and influence over their work environment was an important factor in their satisfaction on the job. Veteran teachers, after years of experience in schools, also identified autonomy in the context of a professional culture as their reason for staying in their schools (Johnson & Birkeland, 2001). Teachers' autonomy seems to recur as a significant factor in many of the studies on teacher retention (Guarino et al., 2006; Horng, 2009; Ingersoll, 2001; Johnson & Birkeland). One of the most frequent themes from teachers who chose to stay in their schools was working with an administrator who provided teachers with control and support (Ingersoll, 2001; Stockard & Lehman). Greater autonomy granted to teachers, along with administrative support, was found to directly correlate to lower levels of teacher migration (Guarino et al.). The school policies that allow for the greatest teacher's influence and control in the classroom and school policy appear to be linked the most with teacher retention (Stockard & Lehman). Teachers' autonomy is also a common workplace element in studies on teacher job satisfaction (Bogler, 2001; Stockard & Lehman). Similar to teacher retention studies, literature on teacher job satisfaction identified autonomy and administrators who provide control and influence to teachers as a critical condition. For example, Ma and MacMillan (1999) found administrative control to be the most significant variable in affecting teacher job satisfaction.

Their description of the type of positive administrative leadership that fosters satisfied teachers was based on Rosenholtz's (1989) work on the teacher workplace: a leader who provides freedom to teachers to make critical decisions regarding the whole school (Ma & MacMillan). Teachers' autonomy is also a prominent workplace condition associated with teaching self-efficacy (Hodge, 2002) and positive teacher attitudes and performance (Blase & Kirby, 2009). Finally, teachers' autonomy appears to be an influence upon student achievement. Marks and Louis (1997) found an association between schools that allow for teacher control in such areas as school management and higher academic performance of students. Learning apparently benefits from a classroom environment in which the teacher – not an external control – chooses the teaching methods and pedagogy (Wobmann, 2003).

A Paradox in the Findings

Teachers have reported a perception of possessing high levels of autonomy (Einolf, 2002; Garvin, 2007; Rudolph, 2006). All teachers have at least some degree of autonomy in the execution of their job based on experience and performance (Rudolph), but the overall perception by teachers seems to be of a high degree of job autonomy. Garvin found that 86% of a sample of elementary teachers in four public school districts in Michigan, New York, and Pennsylvania reported a high degree of autonomy. This perception of high autonomy appears across grade levels. Rudolph found that 74% of elementary school teachers and 91 % of high school teachers surveyed perceived high autonomy in their occupational settings. Teachers may feel a constriction from external sources (Herman & Golan, 1991; Koretz, Barron, Mitchell, & Keith, 1996) but 77% of teachers reported their school's culture promoted their own autonomy

(Garvin). Teachers also reported high levels of autonomy despite the amount of centralized control in their district (Archbald & Porter, 1994). Control over the classroom, specifically in the area of instructional methods, is the area teachers reported as their highest level of autonomy (LaCoe, 2006). Archbald and Porter found that teachers perceive an almost complete control over their classroom pedagogy.

Teachers have reported perceptions of high autonomy, yet a paradox has emerged from the research: Teachers continue to report desire for greater autonomy on the job. The high levels of autonomy reported appear to have little, if any, effect upon teachers' satisfaction with their level of autonomy. Teachers who report little job autonomy desire greater levels and teachers who report near complete control of their classroom desire even greater autonomy. LaCoe (2006) found that teachers reported the greatest degree of autonomy in their pedagogy, yet paradoxically reported a desire for greater autonomy in the same area. Despite citing high levels of classroom control, teachers have cited an even greater desire for autonomy in areas related to the classroom. Teachers described desire for more autonomy in their curriculum (Blase & Kirby, 2009; LaCoe; Rudolph, 2006), assessment (LaCoe), and the pace or schedule of curricular content (Rudolph). Teachers appear to have comprehensive freedom once their classroom doors are closed, yet have demanded additional autonomy over such classroom aspects as instructional decisions and student activities (Blasé & Kirby; Rudolph). Such incongruent results generate questions. What are possible reasons for the apparent contradiction in findings?

Possible Reasons for the Paradox

The apparent contradiction between findings of reported high levels of teachers' autonomy and reported desire for high levels of autonomy may be partially attributable to the following factors: a. the evolution of the conceptualization of teachers' autonomy b. the rise in school accountability and its pressure upon autonomy and c. the approach to measurement of the construct.

Changes to the concept. The first possible reason for a paradox in the findings of teachers' autonomy research may be the nebulous conceptualization and change of the construct. Research into the construct is relatively recent. Only in the decades following World War II did research begin to examine the construct and its effects upon education (Gremmo & Riley, 1995). However, even in this relatively short span, the construct has evolved. Seminal research centered upon freedom as the conceptualization for teachers' autonomy. Charters (1976), basing his work on Blauener's (1964) analysis of freedoms on the job and Lortie's (1969, 1973) analysis of teacher work components, claimed that teachers' autonomy is freedom from any external interference, pressure or control.

Two sources appear to have altered this initial concept: changes to the educational environment and additional research into teachers' autonomy. American education has faced tremendous change during the past several decades (Hargreaves & Goodson, 2006; Murphy & Seashore, 1999; Selwyn, 2007) and this change most likely has significantly affected teachers' autonomy. Crawford (2001) and Bogler (2001) proposed that standardized testing and the accountability surrounding results have rendered teachers' autonomy nearly irrelevant in today's educational climate. Furthermore, the increase in teachers' autonomy research has produced such

a broad understanding of the construct as to render it difficult to define and practically ambiguous (Moomaw, 2005; Pearson & Moomaw, 2006; Rudolph, 2006). Definitions of teachers' autonomy now include, among many others, independence and control (Moomaw), decision-making ability (Gawlik, 2005; Lepine, 2007), and discretion (Rudolph). In addition, teachers' autonomy may occur in either the classroom or whole school. Sentovich (2004) claimed classroom autonomy is teachers in charge of the day-to-day pedagogy and school-wide autonomy is teachers exercising influence in such areas as discipline policy, school budget, performance standards and content of professional development. This broad and splintered concept of the construct of teachers' autonomy may produce disparate results. Autonomy now seems to have many different meanings in a school (Rudolph). Ingersoll (1994) claimed that teacher control depends and may vary based simply on the activity in question. Such differences may lead to differences in perception and thus reports. For example, Lepine found that teachers' perceptions of their autonomy were not the same as their score from the Teachers Autonomy Scale. The results showed a contradiction: Teacher's scores and their description of their behavior were not the same. Teachers who scored as perceiving high levels of autonomy described the same actions as teachers who perceived low levels of autonomy (Lepine).

Rise in accountability. A second possible reason for incongruent findings may be the escalation of school accountability and the resultant pressure upon teachers' autonomy. Public education in America has undergone dramatic changes during the last two decades. One of the most significant agents of change was the No Child Left Behind Act (NCLB) of 2001. This sweeping federal legislation required states to develop a set of assessments by which to measure student progress. States must report student progress through the adequate yearly progress (AYP). The stakes are high for this accountability: both federal funding and control are

connected to a school's and district's AYP. States now require public schools to administer standardized tests. These tests, such as Michigan's Educational Assessment Program (MEAP), are used as the assessment measures to report student progress as required by NCLB. The state tests are also a means to ensure state mandated curriculum standards are incorporated into local schools. Similar to federal mandates, state testing requirements exert heavy pressure upon schools to perform as money can also be tied into results. For example, the Michigan Merit Exam (MME), the MEAP equivalent for high school students started in 2007, awards up to \$2,500 scholarship money to students with superior test scores. These federal and state demands seem to have created a trickle-down effect upon local district policies and procedures. In an effort to meet accountability stipulations, many districts dictate precise state standard-related curriculum to teachers. The changing nature of public expectations has also influenced the recent evolution of education. AYP grades and state testing scores are routinely published in newspapers. Communities are able to compare overall scores and averages of individual schools against other schools. Advances in technology have fueled public accountability expectations. Through the web and school software, parents are now able to view their child's grades and absences in real time.

These recent changes to education appear to have exerted a significant pressure upon the construct of teachers' autonomy. Teacher's autonomy appears to be transforming as a result of the friction with organizational needs to reach federal and state goals. Teachers in public schools have always faced dilemmas in various aspects of their job – occupational conflict is not novel. Time versus amount of curriculum to be covered is one example (Wills & Sandholtz, 2009). However the advent of increased accountability has introduced greater force to the organizational need side of the conflict. Accountability like annual state tests appears to create organizational

needs and goals that may outweigh teacher autonomy. Such conflicts in choices are evident in the constriction on curriculum choice. Wills and Sandholtz found that a school's need to improve student scores on state tests led to increased instructional time in tested areas but decreased class time in all other areas. Prior to accountability's increased pressure upon schools, teachers had greater autonomy in the curricular sphere. The amount of class time devoted to all curricular areas was flexible and left to the discretion of the teacher. Schools now publish their scores on statewide tests. They also designate specific content areas (those that are tested) as non-negotiable items in the day (Wills & Sandholtz). The demands from NCLB and state curricular expectations appear to constrain teachers' autonomy in curricular discretion. A survey of teacher in states with high-stakes testing found that 41% of teachers felt significant enough pressure to raise test scores that they focused the majority of their time upon teaching toward the test (Abrams, Pedulla, & Madaus, 2003). The pressure and stress surrounding these tests were viewed as constant (Barksdale-Ladd & Thomas, 2000) and strong enough to change pedagogy (Abrams et al.; Koretz et al., 1996).

Measurement of the construct. The third possible reason for a paradox in the findings of teachers' autonomy research may be the diversity in approach to measurement of the construct. Four frequently used instruments have been developed to measure teachers' autonomy. The instruments include the Sense of Teacher Work Autonomy (SAS; Charters, 1976), Teaching Autonomy Scale (TAS; Pearson & Hall, 1993), The Self-Empowerment Index (SEI; Wilson, 1993), and the Teacher Work-Autonomy Scale (TWA; Friedman, 1999). The instruments vary in their level of inclusion of the elements of teachers' autonomy through their conceptualization of the construct of teachers' autonomy (see Table 1). The conceptualization of the construct of teachers' autonomy for each instrument is as follows:

1. SAS: the teacher's belief about freedom from external interference, pressure or control. The SAS defines all external constraint as anything originating from outside the classroom.
2. TAS: the teacher's perception as to whether they can control their work environment.
3. SEI: self-empowerment as the individual's perceived personal, internal power. The SEI equates teachers' autonomy with self-empowerment. Though the two constructs possess many commonalities, research generally considers them as two distinct constructs and thus the SEI's validity as a test of autonomy is questionable.
4. TWA: the bestowal or generation of teacher power. These behaviors are demonstrated by a teacher who "...works independently, initiates new activities, and *is free to change existing work procedures in an effort to adapt them to changing conditions and situations* [italics added]." (Friedman, 1999, p. 60).

Table 1

Relationship Between Instrument's Conceptualizations and Elements of Teachers' Autonomy

Instrument	Area		Decision-making	Freedom	Control	Adaptability
	Class	School				
1. SAS	X	-	X	X	-	-
2. TAS	X	-	X	X	X	X
3. SEI	X	-	X	X	X	X
4. TWA	X	X	X	X	X	X

The differences in conceptualizations produced different definitions and scale items. For example, TWA described high autonomy as independent work and initiation of new activities. This interpretation contrasts with the SAS description of high autonomy as a feeling of freedom to instruct in the classroom according to personal judgment. TWA views low autonomy as a lack of independent decisions; SAS views it as a feeling of constraint by external forces.

The extracted factors of the scales are based upon a review of their descriptions in published studies. Each instrument reflects different aspects of autonomy. The instrument's factors vary in their inclusion of the elements of teachers' autonomy (see Table 2).

SAS found five factors all detailing freedoms that autonomy grants. The freedoms include freedom from work pressure, freedom from surveillance, freedom to choose techniques, freedom to control pace of work and freedom to determine assessment criteria. TAS divided autonomy into two factors of general and curricular. SEI found three factors related to empowerment (courage to take risks, self-reflection and internal sense of autonomy). TWA found four factors of school mode of operation, staff development, curriculum development and teaching and assessment.

The instruments seek to measure the construct of teachers' autonomy by soliciting teachers' self-perceptions or feelings of their autonomy. The instruments use a Likert scale format. Each instrument offers a set of items correlated to the conceptualization of autonomy. Respondents must answer within the given scale. The instruments reported coefficient alphas for the entire instrument as follows: SAS (.90), TAS (.80), SEI (.88) and TWA (.91).

Table 2

Relationships Between Instruments' Factor and Elements of Teachers' Autonomy

Factors	Area		Decisions	Freedom	Control	Adaptability
	Class	School				
SAS (freedom)						
1. from work pressure	X	-	-	X	-	-
2. from surveillance	X	-	-	X	-	-
3. to choose technique	X	-	X	X	X	-
4. to control pace of work	X	-	X	X	X	-
5. to determine assessment criteria	X	-	-	X	-	-
TAS						
1. General	X	-	X	X	X	X
2. Curricular	X	-	X	X	X	X
SEI						
1. Risk-taking	X	X	X	X	-	X
2. Self-reflection	X	-	-	-	-	X
3. Sense of autonomy	X	-	-	-	-	-
TWA						
1. Teaching and assessment	X	X	X	X	X	X
2. School operation	-	X	X	X	X	X
3. Staff development	-	X	X	X	X	X
4. Curriculum	X	X	X	X	X	X

However, several limitations surround the instruments. The limitations do not necessarily preclude accurate measurement of the construct. Nevertheless, each instrument is in some degree affected or influenced by these limitations. First, the age when the instrument was developed

may affect the instrument's applicability in today's milieu. The scales range in age from 36 years (SAS) to 11 years (TWA). The context of education has changed significantly in the last ten years. The introduction of NCLB in 2002, accountability demands from the public, and technology advances have all drastically altered the context in which teachers work. Such change may affect the behaviors, actions and even definition of teachers' autonomy. Second, in using a Likert scale exclusively, the instruments limit the ability of the teacher to respond to or to assess his/her autonomy. Teachers must interpret their autonomy based only upon the specific conceptualization of autonomy as given in the instrument. No other avenue of gathering information is available from the use of the four instruments. The third limitation is the applicability of using instruments to specific teacher samples. For example, the TWA was completed in Israel, raising the question of applicability to American teachers. The SAS was developed specifically for elementary school teachers, yet found significant difference in scores between kindergarten teachers and scores from teachers in grades 1 -6. TAS found a significant difference in scores between middle school teachers and elementary and secondary teachers. Such discrepancies seem to cloud the ability of the scales to generalize to all grade levels.

After an evaluation of the strengths and weaknesses of the four instruments, TWA presents the most promise in measuring autonomy in today's environment in the U.S. First, TWA is the most inclusive of the elements of teachers' autonomy (see Tables 1 and 2). The conceptualization of teachers' autonomy as generating power for a teacher seems to capture the construct most fully. Friedman's view of power assumed a proactive status for a teacher: initiation of ideas and the authority and freedom to change procedures to fit the circumstance. Such a concept encompasses the elements of decision-making, freedom and control. The four factors of TWA also seem to summarize most fully the facets of teachers' autonomy. More than

any other instrument, TWA allows teachers to exercise autonomy in their classroom and in school-wide leadership.

A second reason is TWA's adaptability in the face of recent educational change. TWA is the most recent of the instruments and appears to be more applicable to the recent changes to education than the other instruments, particularly the SAS (1976). For example, recent educational research has focused upon transformational and teacher leadership (Copland, 2003; York-Barr & Duke, 2004). Such leadership gives the teacher more authority in school-wide guidance. TWA incorporates an analogous model through its concept of teachers' autonomy as an expression of teacher power in both the classroom (pedagogy) and school-wide (organizational) areas. SAS's autonomy concept of freedom from external control appears obsolete in light of the many mandated external controls in the form of NCLB and state testing. TAS's concept of teachers' autonomy's construct focuses only on control of work environment. Recent increased accountability expectations raise questions concerning teachers' ability to control their environment. In contrast, TWA is the only instrument to be created based upon a conception that provides a freedom for teachers "... to change existing work procedures in an effort to adapt them to changing conditions and situations" (Friedman, 1999, p. 60). Thus, no matter what external change is produced, teachers with autonomy according to TWA will have ability and power to adjust and determine work processes.

TWA is the only instrument that purposefully included the school-wide area as an aspect of teachers' autonomy (see Tables 1 and 2). The SAS, TAS and SEI focused almost exclusively on the individual classroom and pedagogy of a teacher as autonomy's sole domain. Individual classroom autonomy as an area of teachers' autonomy does appear more often in literature and does afford teachers greater influence (Ingersoll, 1994). However, to limit the construct only to

the classroom is to potentially limit the accuracy of its measurement. Friedman viewed teachers as having autonomy to a degree in such school-wide areas as allocation of resources, finances and school objectives (Friedman, 1999).

TWA also presents the most evidence about the applicability of the instrument for all levels of teachers. The participants from its study came from both elementary and secondary schools. The TWA reported correlations for comparisons between elementary and secondary teachers for the four factors as .79, .94, .74, and .85 respectively. Finally, TWA used teachers and principals in the creation of the scale items. Fifty-two teachers and principals generated a list of areas and behaviors in which teachers exercise autonomy from which its items were constructed. The other three instruments created their items only from the work of the researchers absent of teacher contribution. By including teachers, TWA most likely increased its validity.

TWA appears to be the most accurate and ecologically valid instrument to measure teachers' autonomy. Its conceptualization of the construct and its four factors appear to encompass more fully teachers' autonomy's elements as compared with the SAS, TAS and SEI. The TWA provides teachers with the ability and adaptability to confront recent educational changes in contrast to the seemingly static nature of the other instruments. However, TWA was created and tested using samples exclusively in Israel. The TWA has been used with United States samples, but never in its entirety. For example, Hodge (2002) created an instrument using only 11 questions of 31 questions from the TWA in combination with two other existing instruments. Other articles only referenced the TWA as a basis from which another instrument was created to measure teachers' autonomy (Garvin, 2007; LaCoe, 2006; Rudolph, 2006). The TWA's limited use raises several questions concerning the applicability to other samples. Can

the instrument be used as accurately with U.S. teacher samples? Does the reliability given by Friedman translate through national differences and significant educational change?

Purpose of the Study

The primary purpose of this study is to determine the psychometric properties of the TWA with a sample of teachers from the United States. The findings will be compared to Friedman's original findings from 1999 to discuss ability of the instrument to measure teachers' autonomy in light of the recent changes to education and the present educational context. A secondary purpose of this study is to ascertain a general sense of teachers' perceptions of their autonomy in the current context of education. The research questions for this study are as follows:

1. Is the TWA valid and reliable within all levels of education as it purports to be with a U.S. sample of public school teachers?
2. What are current perceptions of teacher autonomy as measured with a sample of U.S. teachers in Washtenaw County?

CHAPTER 2

Methods

Population

The population for this study was full-time equivalency (FTE) K -12 teachers currently employed by the three largest public school districts within Washtenaw County (W.C.), Michigan. The position of teacher included and was limited to special education and classroom teachers. Table 3 presents the total number of teachers employed by these three districts as 1589 (“Registry of Educational Personnel,” 2010).

Table 3

Frequencies of FTE Teachers in Washtenaw County’s Three Largest Public School Districts

Districts	Elementary	Middle	High	Total
Ann Arbor	477	226	331	1034
Lincoln	131	62	76	269
Saline	151	48	87	286
Totals	759	336	494	1589

Washtenaw County represents a range in demographic variety and consequently in school district variety. Table 4 presents several significant demographic characteristics of the three largest districts in Washtenaw County. Washtenaw County is similar in several significant demographic characteristics to those of the United States (U.S.) such as ethnic composition

(W.C.: 75% white, 13% black, 4% Hispanic; U.S.: 72% white, 13% black, 16% Hispanic), residents foreign-born (W.C.: 11%; U.S.: 12%) and residents living below the poverty level (W.C.: 14%; U.S.: 14%) (U.S. Census Bureau,” n.d.).

Table 4

Graduation Rate and Percent of Students on Free/Reduced Lunch and in Each Ethnic Group at Washtenaw County’s Three Largest Districts

Districts	Free/reduced lunch (%)	Graduation rate (%)	Student ethnicity (%)				
			AI	A	AA	H	C
Ann Arbor	22	88	0	14	15	5	57
Lincoln	43	77	1	2	31	4	63
Saline	8	92	0	4	2	3	91

Note. AI= American Indian; A = Asian; AA = African-American; H = Hispanic; C = Caucasian

Numbers rounded to nearest whole number

Procedure

The superintendents of the three largest public school districts in Washtenaw County were contacted individually in order to present this study and to seek permission to survey their teachers. A letter describing the study and requesting permission to contact teachers within their district was given to the superintendents (Appendix A). All three superintendents agreed to allow teachers in their districts to be contacted for voluntary participation in this study.

Email was used to contact all teachers within the three school districts. Due to school policies, the superintendent or teacher union sent the email on behalf of the researcher. The email

included information about the study and a link to a web-based survey (Appendix B). A follow-up email was sent out in a subsequent week: These emails were sent to all participants regardless of whether they responded (Appendix C). Informed consent was provided in the cover page to the survey (Appendix D). The survey requested that participants identify themselves as elementary, middle, and secondary teachers. A power analysis, based upon Kraemer and Thiemann's (1987) calculations, with a power of .80 and a critical effect size of .2 determined the target sample size of 192 for each of the three levels. Four hundred seventy-seven teachers participated in the study for a return rate of 30%. The elementary level achieved the target with 241 responses. Both the middle and high school levels failed to achieve the target with 81 and 152 responses respectively. Four teachers did not report grade level. Combined, the middle and high school levels (secondary level) produced 233 responses. Therefore, analysis of the data did not examine three levels within schools, but rather the two subsamples that met the target sample size: elementary and secondary levels.

Instrument and Data Analysis

The TWA is a 31-item measure designed for the assessment of levels of existing perceived teachers' autonomy (Friedman, 1999). The response format of the TWA is a Likert scale that provides five choices ranging from "not at all" to "always". The TWA was developed in two phases. The first phase was the development of the individual items. Fifty-two teachers and principals generated lists of areas, actions and desired levels of teachers' autonomy. After analysis to create categories and pool the content, researchers randomly selected items. The result of this first stage was the Appropriate Teacher Work-Autonomy (ATA), a 32 item scale comprised of six subscales. The intent of this initial instrument was to measure the level of desired teachers' autonomy. The second phase developed an instrument to measure teachers'

perceptions of their existing perceived autonomy. The ATA's structure and items were used to create the TWA that specified four factors based upon responses from a sample of 650 teachers.

Validity: Factor analysis and principal components analysis. Friedman's (1999) decision to describe the TWA with four factors was based upon analysis of several indices: eigenvalues, a scree plot, and a comparison of residual correlation matrices. Kaiser's rule defined a factor as a component with an eigenvalue greater than 1 (Kaiser, 1960). Initially, five factors were extracted from TWA items based upon the presence of five eigenvalues greater than 1. However, a scree test, which plots the eigenvalues and displays the point where the size drops dramatically, revealed only four significant factors. The residual correlation matrices for four and five factor solutions were compared. From this comparison, four factors were determined as the most appropriate description. Oblique and orthogonal rotations were also used in the factor analysis. Both solutions found similar variables to be correlated with the factors. The oblique rotation was determined to be the more interpretable of the two solutions based in part on the unique correlations between factors and variables. Oblique rotation reported correlations of factor IV to the other three factors respectively as ($r = -.44$), ($r = -.39$) and ($r = -.33$). Final analysis revealed that the four factors explained nearly 50% of the variance in the scale items. The definitions for the four factors as provided by the TWA (Friedman, p. 70) are as follows:

- I. Student teaching and assessment: classroom practice of student attainment evaluation, norms for student behavior, physical environment, different teaching emphases on components of mandatory curriculum.
- II. School mode of operating: establishing school goals and vision, budget allocations, school pedagogic idiosyncrasy, and school policy regarding class composition and student admission.

- III. Staff development: determining the subjects, time schedule, and procedures of in-service training of teachers as part of the general school practice.
- IV. Curriculum development: introducing new “homemade” or “imported” curricula by the teachers and introducing major changes in existing formal and informal curricula.

The data for this study was analyzed using confirmatory factor analysis in an attempt to determine if the original four factors identified by Friedman (1999) in this sample of Israeli teachers would also emerge in a sample of U.S. teachers. This study examined the factors through both oblique and orthogonal rotation to a simple structure in the same manner as Friedman’s original study. Orthogonal rotation was accomplished through the varimax, quartimax and equamax methods. Oblique rotation was accomplished through oblimin. Factor analysis also used the Kaiser-Meyer-Olkin (KMO) test to determine sampling adequacy for sufficient item correlation.

Reliability. Reliability for the TWA was measured by Cronbach’s coefficient alpha, an “...index of common-factor concentration.” (Cronbach, 1951, p. 331). Cronbach’s coefficient alpha for Friedman’s four factors were reported as .85, .80, .84, and .86 respectively. Reliability for this study similarly measured reliability by Cronbach’s coefficient alpha.

Inferential statistics. A series of pair-wise t-tests for each pair of scales was used to determine significance between the means. The results of the paired t-tests for each scale score showed that all comparisons were significant with an alpha level of .05. The scale scores were computed by finding the mean of the items that loaded at .4 or above on each factor. The t-tests

required 10 separate comparisons. Due to large number of comparisons, the Bonferroni adjustment procedures were used to reduce the probability of finding a significant effect by chance and to limit the probability of a Type I error. This adjustment divided the alpha (.05) by the number of comparisons, 10, to produce an alpha of .005.

External validity. Two subsamples of Israeli elementary school teachers ($n = 350$) and Israeli secondary school teachers ($n = 300$) were recruited to test validity generalization for the TWA between school levels. The comparison between the two subsamples produced the following correlations among factor pattern coefficients of the subscales: .79 (factor I), .94 (factor II), .74 (factor III), and .85 (factor IV). This study sought to test the external validity of the TWA to U.S. teachers by sampling U.S. teachers. In order to test the validity of the TWA between different levels of educators, subsamples of elementary school teachers ($n = 241$) and secondary school teachers ($n = 233$) were used. Multivariate Analysis of Variance (MANOVA) examined the effects and interactions among the multiple dependent variables. Analysis computed the dependent variables in two different methods: factor scores and scale scores. MANOVA generated factor scores with four dependent variables of curriculum development, professional development, classroom management, and assessment. The independent variable was the grade levels of elementary versus secondary. MANOVA generated scale scores with four dependent variables of four different scale scores. Analysis created these four scale scores through a computation of the means of each item that loaded on each factor for both levels of teachers and for each of the four factors. MANOVA then compared these dependent scale score variables against the independent variable of elementary and secondary grade levels.

CHAPTER THREE

Results

Question one: Is the TWA valid and reliable within all levels as it purports to be with a U.S. sample?

Factor analysis initially constrained the solution to a four-factor solution for the elementary subsample in order to confirm Friedman's (1999) four-factor solution produced by the Israeli sample. Analysis used three orthogonal and an oblimin oblique solution. None of the solutions produced a coherent four-factor solution. A second factor analysis without the constraint to four factors found no coherent solution for the elementary subsample. The elementary sample was able to produce an acceptable four-factor solution only after all seven items of the school mode of operations factor were deleted using a Varimax rotation. The KMO index for this four-factor solution was .79, indicating the data were suitable for factor analysis. The four factors produced were curriculum (Factor I), professional development (Factor II), student assessment (Factor III), and classroom management (Factor IV). Table 5 presents the elementary factor loadings for a revised four factor solution. Thus, the TWA for the elementary sample appeared appropriate with only 24 of the original 31 items.

For the factor analysis of the secondary subsample, one oblique rotation, parallel to Friedman's (1999) four-factor solution, was examined. The criterion of .40 for inclusion into the factor matrix produced a simple and coherent factor structure; consequently the factor analysis presented items with a .40 and above. Though the oblique oblimin solution was similar to Friedman's factor analysis, two problems emerged. First, the two factors of "staff development" and "school mode of operating" did not clearly differentiate from each other. Second, the KMO index was low. Norusis (1994) suggested any index below .70 may indicate an insufficient

correlation between items. At the secondary level, the analysis produced a KMO index of .58.

Two additional analyses demonstrated further difficulty of a four-factor solution. First, a scree plot indicated that five factors, rather than four, provided a better description of the results. Second, additional factor analysis without the constraint of a four-factor solution produced a coherent five-factor solution for the secondary sample. The five factors aligned as follows: Factor I is labeled curriculum autonomy; Factor II (professional development autonomy); Factor III (student assessment autonomy); Factor IV (classroom management autonomy); and Factor V (school-wide operations autonomy). Five of the 31 items did not meet the .40 criteria for inclusion into the five factor solution matrix.. The five items were: Q8 teachers pick and use specific instruction subjects out of the mandatory curriculum; Q13 teachers share responsibility for school finances; Q14 teachers are authorized to spend money on activities such as recreation and leisure; Q17 teachers decide on student demographic class-composition policy; and Q22 teachers determine their own enrichment general education programs. Table 5 shows the factor loading of the items on the five factor solution for the secondary sample.

Cronbach's coefficient alpha measured the internal consistency for the five factor structure. An alpha coefficient of .70 was the accepted criteria due to its ability to generate a standard error of measurement of .55, over half a standard deviation (Garson, 2011). Two factors in the secondary sample fell below the accepted criteria of .70. However, further analysis that deleted each item one-by-one to examine its ability to fit in the factor solution revealed that all scale items were appropriate and should be included in the survey. A large increase in the alpha coefficient indicates that the deleted item suppressed the coefficient and should be deleted from the scale.

Table 5

Factor Loadings for the Elementary and Secondary Samples

Survey item	Elementary				Secondary				
	Factor				Factor				
	I	II	III	IV	I	II	III	IV	V
Q26	.83				.80				
Q25	.79				.77				
Q28	.78				.78				
Q27	.77				.77				
Q29	.72				.59				
Q31	.63				.43				
Q30	.46				.67				
Q21		.85				-.82			
Q20		.80				-.78			
Q19		.74				-.73			
Q18		.67				-.72			
Q23		.66				-.67			
Q22		-				-.44			
Q14		x				-.42			
Q1			.80				.78		
Q2			.77				.72		
Q3			.75				.73		
Q8			.45				-		
Q5			.54					.75	
Q7				.76				-	
Q6				.74				.77	
Q4				.60				.79	
Q9				.59				.44	
Q11				x					.70
Q15				x					.63
Q16				x					.63
Q10				x					.56
Q17				x					.54
Q12				x					.45

Note. Items that did meet the .40 criteria are indicated with –. Items not included in factor analysis are indicated with x.

However, the current analysis found no such large increase (L. Roberts, personal communication, June 21, 2011).

The reliability coefficient for the total sample was .84, a decrease from Friedman's (1999) original finding of .91. Generally, the reliability analysis found the coefficient alphas for the five factor solution of a U.S. sample to be similar to the alphas of the four factor solution for an Israeli sample. Table 6 presents the Cronbach alpha coefficients for the elementary and secondary samples.

Table 6

Cronbach Alpha Coefficients for Each Factor for the Elementary and Secondary Samples

Factor	Items	Alpha
Elementary		.87
Student assessment	1, 2, 3, 5, 8	.80
Professional development	18, 19, 20, 21, 23	.81
Curriculum	24, 25, 26, 27, 28, 29, 30, 31	.89
Classroom management	4, 6, 7, 9	.64
Secondary		.82
Student assessment	1, 2, 3	.75
School-wide operation	10, 11, 12, 15, 16, 17	.63
Professional development	14, 18, 19, 20, 21, 22, 23	.78
Curriculum	24, 25, 26, 27, 28, 29, 30, 31	.88
Classroom management	4, 5, 6, 9	.65

Question two: What are current perceptions of teacher autonomy as measured with a sample of U.S. teachers in Washtenaw County?

The first research question for the analysis of teachers' current perceptions was, "Do teachers perceive greater autonomy in some areas than in other areas?" Table 7 presents the means and standard deviations of the factors for the elementary and secondary samples.

Table 7

Subsample size, Mean and Standard Deviation of the TWA Survey Items for Elementary and Secondary Samples Grouped from Highest to Lowest Factor According to Means

Survey item	Elementary		Secondary	
	n	Mean(sd)	n	Mean(sd)
Classroom Management	200	3.43(0.43)	199	3.24(0.46)
Q4	193	3.52(0.78)	193	3.29(0.71)
Q6	195	3.45(0.60)	198	3.46(0.53)
Q7	197	3.43(0.58)	192	3.31(0.57)
Q9	190	3.35(0.68)	176	3.23(0.65)
Student Assessment	201	2.57(0.58)	197	2.95(0.49)
Q1	192	2.48(0.73)	186	2.91(0.61)
Q2	188	2.64(0.76)	189	3.02(0.52)
Q3	184	2.24(0.78)	183	2.94(0.65)
Q5	184	2.69(0.72)	190	2.96(0.70)
Q8	185	2.79(0.90)	181	2.93(0.79)
Curriculum Development	193	2.21(0.50)	195	2.40(0.43)
Q24	191	1.79(0.59)	183	2.14(0.63)
Q25	187	2.19(0.67)	181	2.30(0.58)
Q26	177	2.25(0.70)	170	2.35(0.61)
Q27	176	2.13(0.70)	184	2.40(0.68)
Q28	175	2.30(0.66)	182	2.42(0.58)
Q29	185	2.12(0.61)	185	2.37(0.57)
Q30	183	2.24(0.78)	180	2.28(0.66)
Q31	186	2.72(0.69)	191	2.88(0.61)
School-wide Operations			198	1.83(0.45)
Q10	185	1.86(0.82)	167	2.06(0.73)
Q11	190	1.92(0.51)	191	1.86(0.65)
Q12	191	1.54(0.55)	189	1.54(0.61)
Q15	153	2.37(0.79)	155	2.14(0.92)
Q16	182	2.04(0.71)	175	2.12(0.69)
Q17	175	1.97(0.87)	181	1.20(0.48)

Table 9 (cont.)

Survey item	Elementary		Secondary	
	n	Mean(sd)	n	Mean(sd)
Professional Development	195	1.79(0.44)	196	1.70(0.40)
Q13	184	1.57(0.68)	186	1.55(0.71)
Q14	185	1.35(0.58)	188	1.23(0.47)
Q18	191	1.69(0.58)	194	1.65(0.58)
Q19	195	2.02(0.58)	191	1.95(0.54)
Q20	187	1.87(0.57)	189	1.72(0.58)
Q21	188	1.94(0.58)	183	1.74(0.54)
Q22	174	2.35(0.76)	176	2.23(0.83)
Q23	191	1.42(0.55)	188	1.40(0.56)

Note. n, Mean, and sd for School-wide Operations for the elementary sample were omitted to represent the exclusion of the factor from analysis.

The largest difference between the means of the five factors was 1.64 for the elementary sample and 1.54 for the secondary sample. For both samples, the largest difference was between classroom management and professional development. The smallest difference between the means of the factors was .36 for the elementary sample and .13 for the secondary sample. The smallest difference was between student assessment and curriculum development for the elementary sample and between school-wide operations and professional development for the secondary sample. The largest difference in standard deviation between the factors was .15 for the elementary sample and .09 for the secondary sample. All pair-wise t-tests for each scale score for both the elementary and secondary samples were significantly different after the Bonferroni adjustment was applied to control for family-wide error. Teachers from both the elementary and secondary samples ranked their perceptions of autonomy, according to the scale scores, in the same order from highest to lowest as follows: classroom management, student assessment, curriculum development, school-wide operations, and professional development.

The second research question for the analysis of teachers' current perceptions was, "Do mean scores on perceived teachers' autonomy differ for elementary versus secondary teachers?"

MANOVA was used to compare the scale scores. Analysis used the results from four scales excluding school-wide operations as a variable due to its failure to produce a coherent solution at the elementary level.

Table 8 presents the results from the MANOVA. The classroom management mean scored the highest for both elementary and secondary levels. Both levels produced the lowest mean scores in the professional development factor. Significant differences were found between elementary and secondary teachers on all four scales (Wilk's Lambda = .77, $p < .0005$). Each test produced a power level greater than 50% and thus positive effects for each case. Secondary teachers had significantly higher means than elementary in student assessment and curriculum development whereas elementary teachers were significantly higher in classroom management and professional development. The greatest difference between elementary and secondary teachers was on the student assessment scale ($\eta^2 = .16$).

Factor scores found means from the student assessment factor scored the highest for elementary teachers while means from the curriculum development factor scored the highest for secondary teachers. Lowest mean scores ranked opposite highest: elementary mean scores were lowest from curriculum development and secondary mean scores were lowest in the assessment factor. Elementary teachers had significantly higher means than secondary teachers in classroom management, professional development, and student assessment. Secondary teachers were significantly higher in the curriculum development factor. Factor score inferential tests also found a significant difference in teachers' perceptions when compared between elementary and secondary levels (Wilk's Lambda = .72, $p < .0005$). Factor score tests found the greatest

difference between elementary and secondary teachers on the student assessment scale ($\eta^2 = .19$). However, the classroom management factor score achieved an observed power of only .35 and thus was not a significant contrast.

Table 8

Results of the MANOVA, Means and Standard Deviations for Scale and Factor Scores for Elementary and Secondary Teachers

Level or Test	Curriculum Development Scale	Professional Development Scale	Classroom Management Scale	Student Assessment Scale
Scale Scores				
Elementary Mean	2.21	1.79	3.43	2.51
SD	.50	.44	.43	.62
<i>n</i>	193	195	200	201
Secondary Mean	2.40	1.70	3.33	2.94
SD	.43	.44	.44	.45
<i>n</i>	195	194	199	200
Partial Eta Squared	.04	.01	.01	.16
Observed Power	.97	.51	.60	1.00
Factor Scores				
Elementary Mean	-.21	.17	.13	.41
SD	.97	1.00	1.04	1.05
<i>n</i>	76	76	76	76
Secondary Mean	.24	-.18	-.14	-.46
SD	.99	.98	.95	.70
<i>n</i>	68	68	68	68
Partial Eta Squared	.05	.03	.02	.19
Observed Power	.79	.55	.35	1.00

Note. Figures round to the nearest hundredth.

CHAPTER FOUR

Discussion

Suitability of the TWA for a U.S. Sample

The TWA without major modifications appeared to be a valid and reliable instrument for use with U.S. secondary teachers (7 – 12). The TWA appeared valid and reliable for elementary teachers (K – 6) for four of the five factors identified by this study. The factor structure for the secondary sample used most of the TWA items and produced a five-factor solution with acceptable reliability coefficients for all of the factors. The five-factor solution split one of Friedman's factors, student assessment, into two factors, classroom management and student assessment. However, the items in these two new factors contained the same items that are found in Friedman's original factor. Thus, the constructs were comparable. The items included in the other three factors, professional development, school-wide operations, and curriculum development were similar in content to those of Friedman. Both studies produced acceptable internal consistency scores for all factors. All of the pair-wise t-test comparisons between items were significant indicating the TWA is sensitive to identifying differences between items. Finally, in both this study and Friedman's study, teachers reported varied perceptions of autonomy across all of the factors.

Although the results of this study and Friedman's were very similar, some differences should be noted. Neither the elementary nor the secondary U.S. samples produced a four-factor solution matching Friedman's four-factor structure of the TWA. For a coherent solution to be found, each of the U.S. samples required some changes to Friedman's original structure. First, the U.S. elementary sample produced a coherent solution only after an entire factor was deleted.

Second, this study's secondary sample produced a coherent five-factor solution as compared to Friedman's four-factor solution. Finally, the five-factor solution for the U.S. secondary sample deleted 5 of the original 31 items for failure to meet the criterion of inclusion in a factor. Two reasons may explain these differences with Friedman.

School mode of operating items prevented the elementary sample from producing a coherent five-factor solution similar to the secondary sample according to this study. Grade level differences in organization structure and procedures may be partly responsible. Elementary education tends toward a more tightly prescribed curriculum and programming than secondary education (Rudolph, 2006). Moomaw (2005) concluded that "elementary school teachers have to follow more strict guidelines in curriculum and disciplinary actions as compared to their counterparts in middle or high school" (p. 78). State and district benchmarks often stipulate specific expectations for elementary students. Elementary schools do not possess diverse curricular options. Thus, teachers must adhere to such set standards in their curriculum and instruction with marginal flexibility. In contrast, secondary schools offer teachers mechanisms such as departments, team teaching, and common planning periods that provide greater latitude and opportunity to engage in school-wide decision making. Such features, uncommon in elementary schools, may have created a difference in structure between the levels that led to the items concerning school operations not clustering together. Pearson & Hall (1993) claimed school structure features like team teaching and common planning periods create grade level disparity by providing secondary teachers "the opportunity to analyze and resolve work-environment problems and curricular concerns" (p. 177). Secondary teachers possess greater freedom than elementary teachers due to departments or teams that have the authority and responsibility to choose textbooks, pace and assessments in order to handle the more complex

secondary curriculum such as honors programs, vocational training and college entrance exam preparation. For example, team teaching typically allows a group of different subject teachers, responsible for a common segment of the school's students, the freedom to plan curriculum timelines, to develop procedures to evaluation students, and even to discipline students independent of school administration. The elementary teachers in this study's sample likely did not have similar avenues to participate in school-wide operations and thus their perception of autonomy measured by this factor produced a different result from the secondary teachers.

The secondary sample did produce a coherent factor solution using the school mode of operating factor, but three of its items were deleted. Items pertaining to school finances and class composition failed to sufficiently correlate with the factor. Both the elementary and secondary levels failed to produce a school mode of operating structure similar to Friedman's model. This commonality suggests that grade level may not be entirely responsible for differences between the two studies. Cultural differences between U.S. teachers and Israeli teachers may have also influenced the TWA and contributed to discrepancies. Methodologically, Israeli teachers and principals provided researchers with their perspectives of school areas in which autonomy operates and specific teacher activities within those areas. These descriptions were the basis for the TWA's items. These educators necessarily brought their cultural background, biases and educational experiences into the item creation process. U.S. teachers in this study most likely did not share identical biases and experiences and thus a discrepancy from culture differences may have influenced the results. Friedman's study also analyzed the data using groups with no parallel in the U.S. Friedman claimed validity generalization with schools that the Israeli Ministry of Education classified as "autonomous" and "non-autonomous", based upon level of federal control. The U.S Department of Education does not categorize its public schools in this

way. A future investigation can help identify what may be common or uncommon in how schools in these two countries operate in order to help explain the differences found in the factor structures of the TWA for both the elementary and secondary samples.

Current status of U.S. teachers' perspective of autonomy

Regardless of elementary or secondary levels, teachers rated classroom management as the factor with the highest degree of autonomy. These items measured how teachers operate their classes: the physical environment of the room, rules, rewards, and procedures. Autonomy in the classroom has maintained a high level by teachers from pre-NCLB research to the present. Prior research found the operation of individual classrooms to be the most common area in which teachers perceive having autonomy (Blasé & Kirby, 2009; LaCoe, 2006) and the area of highest teacher control (Archbald & Porter, 1994). This study goes beyond confirming earlier findings. Most studies did not use an instrument with a broad measurement of the construct of autonomy or investigated differences among grade levels. The present study was also conducted in an educational climate of intense change and pressure with the multi-faceted TWA. This study found that teachers perceived their classroom as the highest area of autonomy regardless of level and despite recent educational changes.

One explanation of the classroom as a place of steady teacher autonomy may be teachers' belief in their professional ability to be independent in the classroom and school administrators' support of this belief. Elmore (1987) found that teachers believed that they were the best qualified about classroom procedures and thus should have considerable decision-making ability in this area. Teachers enter their profession to do exactly what the classroom management factor describes: manage a classroom. Teachers are entrusted to perform the vast majority of their

classroom time instructing, interacting with students, and maintaining the classroom environment without supervision. Other non-classroom tasks that may be assigned to them, such as designing the content of an in-service program, comprise a much smaller and perhaps, from the teachers' perspective, less important role.

Another explanation may be that the substance of the four items of classroom management are too difficult to standardize or are viewed as not as important as issues that have thus far been the attention of policymakers. For example, no state or federal law specifies the color or content of a bulletin board. State standardized tests do not demand teachers to reward students in a certain manner for appropriate behavior. However, each of the remaining 25 items on the TWA described tasks and behaviors are affected to some degree by recent educational changes and forces such as state standardized tests. These affected items contributed to significant contrasts in the perception of autonomy between elementary and secondary teachers in different areas.

Elementary and secondary teachers perceived autonomy in the different factors in identical order, but with significant differences between their scores. The degree to which teachers perceived autonomy contrasted significantly when compared between elementary and secondary levels despite similar rankings of the factors. This finding confirmed prior research that found significant differences between grade level teachers in their perception of autonomy (Moomaw, 2005; Pearson & Hall, 1993). Several important distinctions emerged from both the factor and scale scores based on these differences.

Grade level differences produced the largest effect sizes in the area of student assessment. In other words, the greatest disparity between elementary and secondary in their perceived

autonomy was assessment. The elementary factor structure included two items the secondary did not: “Teachers select teaching materials from a known inventory” and “Teachers pick and use specific instruction subjects out of the mandatory curriculum.” Different factor loadings for the levels propose possible different conceptions of assessment for the levels. The inclusion of the two added items suggests that elementary teachers viewed assessment autonomy as a broader factor encompassing the ability to choose teaching materials. In contrast, the items in the secondary teachers’ factor seemed to limit assessment strictly to evaluation and scoring criteria.

A second distinction was found in professional development. Elementary teachers scored significantly higher than secondary teachers in both the factor and scale scores in their perception of professional development. Factor loadings appeared to influence this difference as well. Factor items for both levels were identical with the exception of two items found only in the secondary factor: (Q14) “Teachers are authorized to spend money on activities such as recreation and leisure” and (Q22) “Teachers determine their own enrichment general education programs.” The secondary conceptualization of professional development appeared more comprehensive than the elementary level because all elementary items were based solely on the terms “in-service” and “professional development”. Paradoxically, the broader concept may have contributed to lower scores for the secondary teachers in contrast to the elementary. Items 14 and 22 received some of the lowest mean scores of all items and were only .02 and .04 from deletion due to failed criterion. The inclusion of low scoring items into the secondary factor structure may have lowered teachers’ overall score for professional development.

Secondary teachers’ perception of curricular autonomy was significantly higher than elementary teachers’ perception. Rudolph (2006) attributed differences in curriculum matters to the presence of team teaching and emphasis on critical thinking skills at the secondary level.

Secondary teachers also likely perceived higher autonomy than elementary teachers in curriculum due to the multiple grade level differences in school structure, procedure and district demands.

Finally, classroom management showed the weakest differences between grade levels. Elementary and secondary levels significantly contrasted only on the scale score, not the factor score. Furthermore, earlier research, as confirmed by this study, found all teachers to perceive control over their classroom as their highest level of autonomy (Archbald & Porter, 1994; LaCoe, 2006). These findings suggested that the contrast between levels for classroom management though statistically significant, may be in practice probably inconsequential.

Recommendations for practice

Administrators' recognition of the challenges facing teachers' autonomy in the U.S. today is the first step toward supporting autonomy in areas where it is resilient and developing it where it is not. Three issues surrounding teachers' autonomy confront educators. First, this study confirmed the multi-faceted nature of the construct. Teachers' autonomy is not a singular general construct that appears uniformly in all aspects of the teachers' daily lives. Autonomy appears to be strongest in teachers' management of their classrooms but weaker in other areas. School leaders must acknowledge the different types of autonomy and the extent to which they are operational in order to more fully capitalize on its presence with teachers. Second, school structures distinct to grade level appear to affect teachers' autonomy. Such differences imply greater responsibility upon building principals at various levels rather than district-wide administrators for promoting autonomy if they desire to do so. Finally, political forces

increasingly constrict teachers' autonomy. Educators are accountable to external forces and must work within the laws and expectations specific to their district. The challenge for today's administrators is to work to foster teachers' autonomy while contending with these powerful external forces.

A critical second step for administrators is to engage in a continual assessment of teachers' autonomy. Hall and Hord (1987) claimed that a priority for school principals is to understand the practices and behaviors of their teachers. Teachers' autonomy appeared to be an important element of successful schools (Blasé & Kirby, 2009; Stockard & Lehman, 2004). Educators must have a basic knowledge of the levels of their autonomy in their schools in order to most effectively develop this critical element. However, the multiple challenges to autonomy hinder accurate measurement of the construct. The TWA is one method to measure teachers' perception of autonomy in a fluid environment. However, administrators would do well to monitor the levels of autonomy within their buildings on a regular basis through more than the TWA. Hall and Hord, based upon the Concerns-Based Adoption Model, proposed stages of information gathering that create ongoing avenues for a principal to understand his faculty's practices. Personal conversations and informal surveys are examples of such information gathering and may provide a fuller appraisal of teachers' autonomy. From these evaluations, administrators and teachers can then work together toward identifying specific areas that lack or withhold teacher autonomy.

Administrators do possess considerable influence upon teachers' autonomy despite the forces outside their control. Classroom management may be the domain for teacher freedom, but administrators exert significant authority over the areas of school finance, curriculum, and professional development (Gawlik, 2005). In many schools, teachers have little or no decision-

making ability in these areas. Autonomy in such areas seems dependent upon administrators to share decision-making of those school operations. Principal and teacher autonomy appear to be complementary parts of an inverse relationship: the more control the principal holds for himself, the less control and power the teacher possesses (Gawlik).

A teacher with autonomy possesses power. This power is demonstrated by a teacher who “...works independently, initiates new activities, and is free to change existing work procedures in an effort to adapt them to changing conditions and situations” (Friedman, 1999, p. 60).

Administrators who desire to encourage teacher autonomy must assess honestly their own levels of power and control in their school. Some areas of autonomy naturally belong to administrators but many decisions or responsibilities are open to shared power. Silva, Gimbert & Nolan (2000) described shared power between teacher and administrator, regardless of position, as “teacher leadership.” In the context of a teacher leadership model, administrators must actively seek to enhance teachers’ autonomy by releasing some of their power to include teachers in school leadership. Specifically, principals should provide teachers opportunity for leadership in the two areas teachers perceived with lowest autonomy: school finances and professional development. For example, even if a building’s professional development budget is set by a district’s central administration, principals can still seek to grant teachers leadership in setting the topics, and scheduling speakers. Greater autonomy in areas outside of teachers’ classrooms has potential to lead to other positive developments associated with teacher leadership such as faculty collaboration and a strong commitment to school mission (Silva, et al.).

Recommendations for future research

Several limitations of this study provide opportunities for future research in teachers' autonomy. First, the sample was limited to public schools in one county in Michigan. Although the demographics of Washtenaw County are similar to those of the United States as a whole, generalizations from this study must be done so cautiously. Public school districts across the United States vary in culture, leadership, and expectations. Such variations may significantly influence perception of autonomy. Different school contexts such as charter and private schools may also affect teachers' perceptions of autonomy. Further investigation of the TWA and teachers' autonomy in different areas of the U.S. and with charter or private schools may provide a more comprehensive assessment of the instrument and teachers' perception of their autonomy. Second, this study combined middle and high school teachers into one sample. Although the two levels are similar in school structure, differences in behaviors and perceptions between middle and high school teachers have the potential to produce different factor structures. Analysis including the three distinct levels of elementary, middle, and high school levels will help bring clarity into future research. Third, analysis of the TWA in this study focused upon psychometric qualities with no investigation of culture's specific effect upon the construct of teachers' autonomy. National and ethnic differences in education seem to affect, to some degree, the TWA and teachers' autonomy. These differences may also affect other aspects that appear to influence autonomy such as grade level differences. Future research should include a qualitative investigation into cultural differences and the effects upon education. Such inquiry will provide a more thorough understanding of measurement of teachers' autonomy across the demographic and cultural spectrum. Finally, this study presented only the perceptions of current job autonomy. Though this information is helpful in assessing the environment for teachers in the current

context, it also raises the question: Are teachers satisfied with their reported levels? If the structure of U.S. public schools limits teacher autonomy in areas outside the classroom, teachers may feel less satisfaction in those areas. Additional research should include pairing current perceptions with desired levels in order to more fully present the status of teachers' autonomy in the constantly changing educational climate. This research would also be helpful toward other investigations into grade level differences and the specific applicability of the TWA to those levels.

Conclusion

Teachers' autonomy confronts today's educators with an array of complications. The construct is difficult to define, school structures inherently limit autonomy, and recent policies increasingly constrict what autonomy teachers do possess. However, teachers' autonomy is a valuable asset to any school, influencing a host of other positive school qualities. Thus, school administrators are obligated to seek ways to encourage their teachers' autonomy. This study found the TWA to be an instrument capable of providing accurate measurement in today's educational environment in the U.S. The shared powers of teacher leadership may be one specific avenue toward building teachers' autonomy in U.S. schools.

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APPENDIX A: Letter to Superintendents

Dear Superintendent,

I am a teacher in the Chelsea School District conducting research for my doctoral dissertation through Lehigh University in Bethlehem, PA. The purpose of my research is to evaluate an instrument used to measure teachers' autonomy. Attached is the survey instrument I would like to administer to a sample of Washtenaw County teachers. The estimated time for completion of the survey is ten minutes.

I seek your approval to contact selected teachers in your district. I will email selected teachers the web-based survey. Teachers' participation is voluntary and anonymous. All data gathered will be confidential and will be reported as a whole with no connection to an individual, school or district. Information gathering and handling will adhere to the standards of the *Federal Policy for the Protection of Human Subjects* (Federal Register, 1991) and the *Ethical Principles in the Conduct of Research with Human Participants* (APA, 1982).

To indicate your approval or for any questions, please contact the researcher Luman Strong at lstrong@chelsea.k12.mi or the principal investigator Dr. Ron Yoshida at rky2@lehigh.edu. You may also contact Lehigh University's Office of Research and Sponsored Programs through Susan Disidore (phone: 610-758-3020) (email: sus5@lehigh.edu) or Troy Boni (phone: 610-758-2985) (email: tdb308@lehigh.edu).

Thank you for your time and consideration. I look forward to hearing from you.

Sincerely,

Luman Strong

<https://www.surveymonkey.com/s/myautonomy>

APPENDIX B: Email to teachers

Dear Teacher,

I am a teacher in the Chelsea School District conducting research for my doctoral dissertation through Lehigh University in Bethlehem, PA. The purpose of my research is to evaluate an instrument used to measure teachers' autonomy.

Your participation in completing the attached survey is an important part of my study. The estimated time to complete all the questions is 10 minutes. The responses and information from your survey will remain confidential. Only group data will be reported so your responses will not be identified with a school or district.

Your participation in this study has been approved by your superintendent. For any questions or concerns, please contact the researcher Luman Strong at lstrong@chelsea.k12.mi or the principal investigator Dr. Ron Yoshida at rky2@lehigh.edu. You may also contact Lehigh University's Office of Research and Sponsored Programs through Susan Disidore (phone: 610-758-3020) (email: sus5@lehigh.edu) or Troy Boni (phone: 610-758-2985) (email: tdb308@lehigh.edu).

To begin the survey, click on the link below. The survey begins with an informed consent. I appreciate your time and effort toward furthering education!

Sincerely,

Luman Strong

<https://www.surveymonkey.com/s/myautonomy>

APPENDIX C: Follow-up email to teachers

Dear Teacher,

Please consider taking a few minutes to complete the attached survey. The purpose of this study is to evaluate an instrument used to measure teachers' autonomy. I need your input to be able to determine its validity. As a fellow teacher, I know how busy you are. The estimated time to complete all the questions is no more than 10 minutes. The responses and information from your survey will remain confidential.

Your participation in this study has been approved by your superintendent. For any questions or concerns, please contact the researcher Luman Strong at lstrong@chelsea.k12.mi or the principal investigator Dr. Ron Yoshida at rky2@lehigh.edu. You may also contact Lehigh University's Office of Research and Sponsored Programs through Susan Disidore (phone: 610-758-3020) (email: sus5@lehigh.edu) or Troy Boni (phone: 610-758-2985) (email: tdb308@lehigh.edu).

To begin the survey, click on the link below. The survey begins with an informed consent. I appreciate your time and effort toward furthering education!

Sincerely,

Luman Strong

<https://www.surveymonkey.com/s/myautonomy>

APPENDIX D: Teacher Work-Autonomy Survey



Teacher Work-Autonomy Survey

1. Informed Consent

1 / 5		20%
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The purpose of this study is to evaluate an instrument designed to measure teachers' autonomy. The survey was developed using only Israeli teachers and thus accurate application to U.S. teachers is uncertain. Your participation in filling out this survey will provide valuable information toward establishing a credible tool to gauge the levels of autonomy U.S. teachers believe they possess. The estimated time to complete this survey is 10 minutes.

Your responses will be completely confidential. All data will be reported as a whole with no connection to an individual, school or district. Information gathering and handling will adhere to the standards of the Federal Policy for the Protection of Human Subjects (Federal Register, 1991) and the Ethical Principles in the Conduct of Research with Human Participants (APA, 1982). No personal information is necessary.

For any questions or concerns, please contact the researcher Luman Strong at lstrong@chelsea.k12.mi or the principal investigator Dr. Ron Yoshida at rky2@lehigh.edu. You may also contact Lehigh University's Office of Research and Sponsored Programs through Susan Disidore (phone: 610-758-3020) (email: sus5@lehigh.edu) or Troy Boni (phone: 610-758-2985) (email: tdb308@lehigh.edu).

Your participation is voluntary and you are not obligated to complete the survey. If you agree to participate, click on the "next" button to begin the survey.

Thank you for your investment in education,
Luman Strong
Doctoral Candidate, Lehigh University
Teacher, Chelsea School District

Dr. Ron Yoshida, Committee Chair, Lehigh University
Dr. George White, Committee Member, Lehigh University
Dr. Daphne Hobson, Committee Member, Lehigh University
Dr. Richard Wallace, Committee Member, Spring Arbor University

Next

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Teacher Work-Autonomy Survey

2. The Survey: teaching and assessment questions

2 / 5		40%
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Click on the answer to the statement that best describes your experience as a teacher.

1. Teachers establish student achievement evaluation criteria

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

2. Teachers determine practical techniques for student progress assessment

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

3. Teachers decide on testing and scoring criteria for student achievement assessment procedures

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

4. Teachers determine classroom physical environment

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

5. Teachers select teaching materials from a known inventory

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

6. Teachers decide on classroom work procedures

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

7. Teachers determine norms and rules for student classroom behavior

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

8. Teachers pick and use specific instruction subjects out of the mandatory

curriculum

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

9. Teachers reward deserving students without the need to get the principal's consent

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

10. Teachers add to or delete teaching subjects from the official curriculum

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

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Teacher Work-Autonomy Survey

3. The survey: school mode of operating questions

3 / 5		60%
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Click on the answer to the statement that best describes your experience as a teacher.

1. Teachers make decisions on school expenditures

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

2. Teachers make decisions on budget planning

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

3. Teachers share responsibility for school finances

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

4. Teachers are authorized to spend money on activities such as recreation and leisure

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

5. Teachers decide on class timetable policy

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

6. Teacher focus groups decide on curriculum matters for the whole school

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

7. Teachers decide on student demographic class-composition policy

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

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Teacher Work-Autonomy Survey

4. The survey: staff development questions

4 / 5		80%
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Click on the answer to the statement that best describes your experience as a teacher.

1. Teachers decide on the location and timetable for their in-service training courses

☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

2. Teachers initiate topics for their professional development and in-service training

☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

3. Teachers decide on general criteria for their professional development

☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

4. Teachers select subjects for their in-service training sessions based on agreed upon criteria

☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

5. Teachers determine their own enrichment general education programs

☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

6. Teachers appoint the instructors for their in-service training and professional development programs

☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

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Teacher Work-Autonomy Survey

5. The survey: curriculum development questions

5 / 5		100%
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Click on the answer to the statement that best describes your experience as a teacher.

1. Teachers initiate and develop completely new curricula

- ☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

2. Teachers initiate and administer new enrichment and cultural activities

- ☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

3. Teachers contrive unique topics for the social cultural and general enrichment activities of students

- ☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

4. Teachers devise new curricula, using new and old elements

- ☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

5. Teachers formulate and try out innovative curricula

- ☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

6. Teachers introduce new extracurricular items into the school

- ☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

7. Teachers introduce changes and modifications into the formal curriculum

- ☐ not at all
 ☐ occasionally
 ☐ undecided
 ☐ frequently
 ☐ always

8. Teachers compose new learning materials for their students

- ☐ not at all ☐ occasionally ☐ undecided ☐ frequently ☐ always

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Done

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APPENDIX E: Vitae

Luman E. G. Strong

1616 Nathan's Trail
Chelsea, Michigan 48118
lstrong@chelsea.k12.mi.us

Education

Doctor of Education, Educational Leadership January, 2012

Lehigh University, Bethlehem, PA

Master of Arts, School Counseling December, 2005

Eastern Michigan University, Ypsilanti, MI

Bachelor of Arts, Psychology and Behavioral Science June, 1993

Cedarville University, Cedarville, OH

Professional Experience

Teacher and Guidance Counselor 2005 – Present

Chelsea School District, Chelsea, MI

Guidance Counselor and Director for Accreditation 2003 – 2005

Centennial Christian School, Seoul, South Korea

Elementary level Teacher 1997 – 2003

Chelsea School District, Chelsea, MI